APPENDIX G

QUALITY ASSURANCE SAMPLING PLAN

QUALITY ASSURANCE SAMPLING PLAN

FOR

R6 WILCOX OIL REFINERY REMOVAL ASSESSMENT
WEST 221st STREET SOUTH/REFINERY ROAD
BRISTOW, CREEK COUNTY, OKLAHOMA

Prepared for

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FPN N/A
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1. INTRODUCTION

Weston Solutions, Inc. (WESTON®), the Superfund Technical Assessment and Response Team (START) Contractor has been tasked by the U.S. Environmental Protection Agency (EPA) Region 6 Prevention and Response Branch (PRB) under Region 8 Contract No. EP-S8-13-01, Technical Direction Document (TDD) No. 0009/WESTON-042-17-064 (Appendix C) to provide technical support during the time critical removal action at the Wilcox Oil Company Superfund Site, located at West 221st Street South/Refinery Road near Bristow, Creek County, Oklahoma. A Site Location Map is provided as Figure 1-1. All figures are provided as separate portable document format (PDF) files. The Superfund Enterprise Management System (SEMS) Identification Number assigned to the Site is OK0001010917. Site coordinates are Latitude 35.842144° North and Longitude 96.381456° West.

START has prepared this Quality Assurance Sampling Plan (QASP) to describe the technical scope of work and activities to be completed as part of the TDD. START will work concurrently with the Emergency and Rapid Response Services (ERRS) contractor, Environmental Restoration, LLC., who will be responsible for excavation, transportation, and disposal of site-related contaminated soil including benzo(a)pyrene and sludge containing total petroleum hydrocarbons (TPH). Specific ERRS site-related activities will be described in their respective work plan documents.

1.1 PROJECT OBJECTIVES

START is providing general technical support to EPA for performance of the Wilcox Oil Refinery time-critical removal action. START activities include establishing on-site excavation grids; collecting post-excavation samples; performing laboratory analysis, data validation, and data management; air monitoring; and maintaining site documentation using Response Manager. In addition, written, digital, and cost documentation will be compiled documenting the removal activities.

Specific field investigation activities will include discussion of data quality objectives (DQOs), health and safety protocol, community relations, field activity meetings, command post establishment, and quality control/quality assurance.

The objective of the time-critical removal action is to remove the threat to human health and the environment posed by chemicals of concern (COCs) resulting from historical site operations conducted at the former Wilcox Oil Refinery Site, specifically related to Property 006. The objective of the time-critical removal action will be achieved by excavating contaminated soils ranging from a depth of 0 to 24 inches below ground surface (bgs). Post-excavation soil samples will be collected by START prior to backfilling the excavated grids with clean fill material. Soil samples representing each grid will be analyzed for Semi-volatile Organic Compounds (SVOCs) following SW-846 Method 8270 - Selected Ion Monitoring (SIM). The site-specific COC is Target Analyte List (TAL) benzo(a)pyrene. The site-specific action level, as specified in the May 2017 "EPA Action Memorandum," is provided in Table 1-1.

Table 1-1
Site-Specific Action Level
Wilcox Oil Refinery
Bristow, Creek County, Oklahoma

Analyte	Action Level[1]	Units
Benzo(a)pyrene	0.11	mg/kg

Notes:
mg/kg - milligrams per kilogram
1 – specified in the "EPA Action Memorandum, May 2017."

1.2 PROJECT TEAM

The START Project Team Leader (PTL) position will be held by Derrick Cobb, and the Field Team Leader (FTL), Meagan Willis, will fill positions of Field Safety Officer (FSO) and Data Manager. The PTL will be responsible for the technical quality of work performed in the field, documentation of site operations, collecting confirmation soil samples, providing overall site health and safety support, and will serve as the START liaison to the EPA Region 6 On-Scene Coordinator (OSC) Steve Mason. The FTL, in collaboration with EPA OSC Mason will determine the location for sample collection in the field, collect samples as necessary, log the activities at each sample location in the field logbook, and verify the sample documentation. Data management will include entering samples collected into SCRIBE; producing accurate chain-of-custody documentation for the samples during the removal action; entering daily operations and sample collection data into the Regional Response Center–Enterprise Data Management System (RRC-

EDMS) Response Manager software; and sample shipment. START will conduct sample collection, preparation, and documentation; and document site activities in field logbooks and data sheets. The START Scope of Work Leader, Jeff Criner, will provide technical support to the START personnel during project activities.

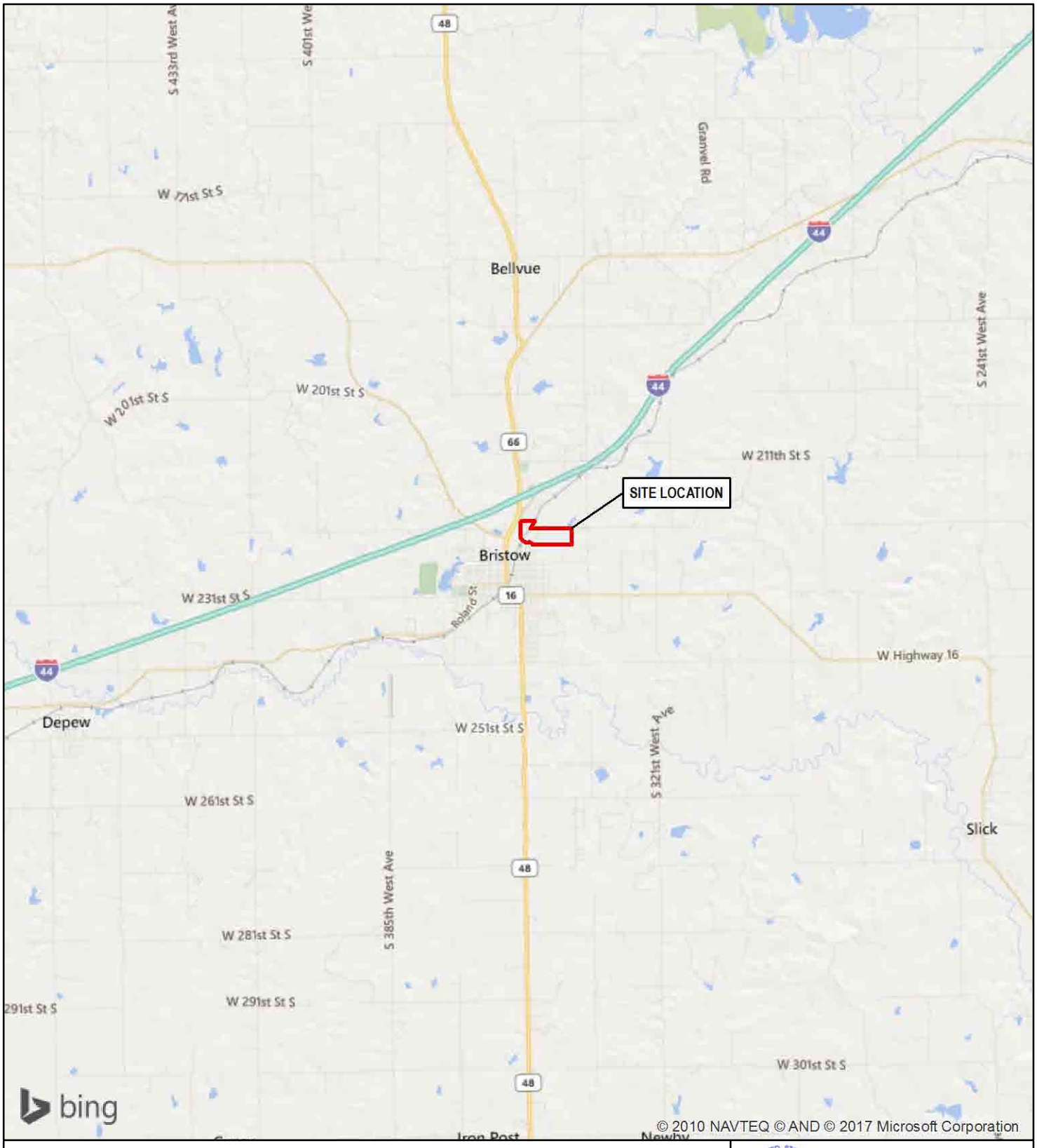
1.3 QASP FORMAT

This QASP has been organized in a format that is intended to facilitate and effectively meet the objective of the removal action. The QASP is organized as follows:

- Section 1 – Introduction
- Section 2 – Site Background
- Section 3 – Sampling Approach and Procedures
- Section 4 – Analytical Methods and Data Validation
- Section 5 – Quality Assurance

All figures are provided as separate Portable Document Format (PDF) files. Appendices are attached with the following information.

- Appendix A Standard Operating Procedures
- Appendix B Data Quality Objective
- Appendix C TDD No. 0009/WESTON-042-17-064



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Miles

US EPA REGION 6

LEGEND

Wilcox Oil Refinery Boundary

N

FIGURE 1-1
SITE LOCATION MAP
WILCOX OIL REFINERY
WEST 221st STREET SOUTH/
REFINERY ROAD
BRISTOW, CREEK COUNTY, OKLAHOMA

DATE	PROJECT NO	SCALE
AUGUST, 2017	20408.012.009.6064.01	AS SHOWN

TDD NO: 0009/Weston-042-17-064
SEMS NO. OK0001010917

SOURCE: 2010 Microsoft Corporation and its data suppliers

FILE: L:\20406_START3_R6\WILCOX_OIL\GIS\MXDs\QASP Figures\Figure 1-1 Site Location Map.mxd 10:45:31 AM 8/8/2017 wilderj

2. SITE BACKGROUND

This section presents a summary of background information for the Wilcox Oil Refinery site including site location and description, operational and regulatory history, previous investigations, and sources of contamination.

2.1 SITE LOCATION AND DESCRIPTION

The Wilcox Oil Refinery site is an abandoned and demolished oil refinery and associated tank farm located north of Bristow, Creek County, Oklahoma. The geographic coordinates of the Site are approximately 35°50'31" North latitude and 96°23'02" West longitude. A detailed title search in the Creek County Clerk office confirms that the property was used in oil refinery operations from approximately 1915 until November 1963. The former Lorraine refinery, including associated tank farm, operated under numerous companies from approximately 1915 to 1937 when the property was sold to Wilcox Oil and Gas Company. Wilcox Oil and Gas Company purchased refinery operations on the remaining acres east of the railroad tracks and operated as a crude oil refinery from the 1920s until the property was sold on 01 November 1963. The site encompasses approximately 140 to 150 acres. A Site Area Map is provided as Figure 2-1, and a Site Property Map is provided as Figure 2-2.

The site is flanked by Route 66 to the west; a residential area and Turner Turnpike to the northwest and north; Sand Creek to the southwest; and residential, agricultural, and wooded areas to the east and south. The topography in the vicinity of the site slopes to the south. Surface water runoff would follow the topography in the vicinity of the site. There are several fresh-water ponds on the site, and some local residents indicated that, historically, fishing has occurred. Two intermittent streams drain the eastern and western portions of the site, and these streams flow south into Sand Creek.

The former Wilcox Process Area is fenced while residential and agricultural properties on the site are partially fenced with barbed wire. A chain-link fence was installed around the former Lorraine Process Area during the 2015 Phase II removal assessment.

The Site is divided into five major former operational areas: the Wilcox Refinery, the Lorraine Refinery, the North Tank Farm, the East Tank Farm, and the Loading Dock Area. These five areas are described as follows:

- The former Wilcox Refinery Area is fenced and covers approximately 26 acres. Most of the equipment and storage tanks that remained on-site in 1963 were auctioned and have been salvaged for scrap iron by private land owners, and what remains are in ruins. Four aboveground storage tanks (ASTs) (12,500 gallons each) remain standing, in addition to a number of buildings, discarded drums and pieces of scrap iron and piping. There are multiple areas of stressed vegetation, barren areas, and visible black tarry waste of a hydrocarbon nature. A building in the northern part of the former refinery has been converted to a residence. An intermittent creek flows southward across the eastern portion of the refinery area through a small pond in the southeast corner of the refinery area and into Sand Creek.

- The former Lorraine Refinery Area covers approximately 8 acres and includes the southwestern portion of the Site, south of Refinery Road and west of the railroad. No refinery structures remain in the processing area. The First Assembly of God Church, a playground, and one residence are located here. There are multiple areas of stressed vegetation, barren areas, and visible black tarry waste of a hydrocarbon nature.

- The East Tank Farm was a large crude oil storage area/tank farm covering approximately 80 acres and contains pits, ponds, and a number of circular berms that surrounded tank locations. All of the tanks have been cut down and removed; however, remnants of the tank locations remain and are visible. Many of the berms surrounding the pits, ponds, and former tanks have been cut or leveled. An intermittent creek is located in the eastern portion of the tank farm and flows south to Sand Creek. A pumping or gas compressor station exists in the north-central portion of the Site, and an active pipeline crosses from northwest to southeast across the middle of the Site. There are four residences located on top of or directly next to former tank locations. There are multiple areas of stressed vegetation, barren areas, and visible black tarry waste of a hydrocarbon nature. Waste was also observed in several drainage channels that empty into Sand Creek.

- The North Tank Farm was a crude and fuel oil storage area consisting of approximately 20 acres. No refinery structures remain in the product storage area, and all tanks have been cut down and removed. Remnants of the tank locations are not visible, and historic locations are difficult to pinpoint. One residence is located in this area.

- The Loading Dock Area is approximately 7 acres and was used for loading and unloading product by rail. Just a few refinery structures/supports remain and are generally located

parallel to the existing rail lines. There are multiple areas of stressed vegetation, barren areas, and visible black tarry waste of a hydrocarbon nature.

2.2 OPERATIONAL AND REGULATORY HISTORY

A modern skimming and cracking plant was constructed in 1929. The upgraded facility had an operating capacity of 4,000 barrels of crude oil per day. The main components of the system consisted of a skimming plant, cracking unit, and re-distillation battery with a vapor recovery system and continuous treating equipment. The crude oil was brought directly from the field, eliminating storage and handling facilities, but resulting in crude oil with high sediment and water.

Sanborn fire insurance maps can be used to understand historical property usage. The Wilcox Oil and Gas Company and Lorraine Refining Company Sanborn Insurance Maps indicate that the properties contained approximately 80 storage tanks of various sizes, a cooling pond, and approximately 10 buildings housing refinery operations. The maps also indicate that crude oil, fuel oil, gas oil, distillate, kerosene, naptha, and benzene (petroleum ether) were all stored on the property.

After the refinery operations ceased and most of the tanks and buildings were demolished and sold for scrap, the property was sold to private interests. Beginning in 1975 with the construction of the church, private residences were constructed on 6 parcels of land that were part of the former refinery operations. The most recent being constructed in 2003/2004. One former building associated with the refinery was repurposed as a residence. As a result, there is a total of seven residences on the Site, all of which are located on former tank or refinery operations locations. Three of the residences located on the eastern portion of the Site are known to use water from domestic/private wells. The drainage pattern of the Site is primarily toward Sand Creek that serves as the western and southwestern boundaries of the Site. Two intermittent streams and several drainage channels cross the portion of the Site east of the railroad and flow into Sand Creek.

The refinery waste source areas of concern include a backfilled oily waste pond and pit, a breached settling pond, a former pond apparently backfilled with solid refinery waste, and a number of former tank storage areas. The contaminants of concern are metals and organic compounds (Total Petroleum Hydrocarbons (TPH) and Polycyclic Aromatic Hydrocarbons [PAHs]). These potential

contaminants of concern are found in soil, sediment, and waste material.

Specifically, Property 006 (subject to this removal action) is currently occupied by a family. During previous assessment activities, levels of benzo(a)pyrene were found to exceed the screening level of 0.016 mg/kg at depths ranging from 0.0 inches bgs to 24 inches bgs. No other SVOC or TPH exceedances were reported for Property 006.

2.3 SUMMARY OF PREVIOUS INVESTIGATIONS

Multiple investigations have been performed on the Site since 1994. These documents were used to summarize the Site background and operational history described above.

- Preliminary Assessment (PA) was performed at the former Wilcox Refinery Site by the Oklahoma Department of Environmental Quality (ODEQ) in December 1994.
- Expanded Site Inspection (ESI) was performed at the former Wilcox Refinery Site for the EPA in March 1997.
- Site Assessment (SA) was performed at the former Wilcox Refinery Site by EPA in March 1999.
- PA was performed at the former Lorraine Refinery Site by ODEQ in September 2008.
- Site Inspection (SI) was performed at the former Lorraine Refinery Site by ODEQ in August 2009.
- ESI was performed at the former Lorraine Refinery Site by ODEQ in September 2010.
- ESI was performed at the former Wilcox Refinery Site by ODEQ in September 2011.
- Hazard Ranking System Package was completed in May 2013.

In 2014, the EPA ERRS contractor capped and locked an abandoned drinking water well located near the former location of the First Assembly of God Church to the west of the site. ERRS also installed a fence with signage around an oily sludge pit located on a residential property developed within the historical refinery boundary (Property 001).

In 2014 and 2015, WESTON, the EPA Region 6 START contractor, was tasked by EPA Region 6 to perform a Removal Assessment at the Wilcox Oil Refinery site under TDD No. 5/WESTON-042-15-004. Phase 1 was conducted 08 - 11 December 2014, and Phase 2 was conducted 18 May 2015 through 12 June 2015. The field sampling strategy focused on collecting soil samples from

residential properties that have been built on or are in close proximity to the Wilcox Oil Refinery Site.

Prior to initiating the sampling activities in Phase 1, EPA gained access to one targeted residential property (Property 001) within the former Wilcox Oil Refinery Site boundary. As part of the assessment activities, the EPA Team collected 187 soil samples (including duplicate QA/QC samples) from a total of 57 grids. Two samples were also taken at the request of the EPA OSC from soil on the bank of an on-site pond and soil that was affected with a tar-like substance from an unknown source.

Prior to initiating Phase 2, EPA gained access to 9 residential properties. The EPA Team collected a total of 240 soil samples (including duplicate QA/QC samples) from a total of 52 grids from 9 properties on and around the Wilcox Oil Refinery Site (5 properties located on the site and 4 properties located adjacent to the site). At the direction of the EPA OSC, select locations were pushed to deeper depths to visually investigate the presence of potential refinery waste. Based on historical site operations and historical aerial photographs, selected grids were investigated below 24 inches bgs. These grids were identified on Properties 002, 006, 008, and 011. The center point of each grid was advanced to a maximum depth of 8 feet bgs or refusal (i.e., bedrock). Visual observations were noted. No analytical samples were collected from these at-depth soil investigation borings.

Results from previous investigations are presented in the EPA START-3 *Wilcox Oil Company Superfund Site Removal Assessment Report*, (TDD No. 5/WESTON-042-15-004) dated January 2016, for results from previous investigations.

2.4 POTENTIAL SOURCES OF HAZARDOUS MATERIALS

Information concerning the known or potential hazardous substance source areas at the site (Property 006) and the COCs thought to be associated with each source are presented in the following section. Based on the EPA START-3 Removal Assessment Report, former site activities that contributed to potential sources include the following:

- The Wilcox Refinery
- Lorraine Refinery

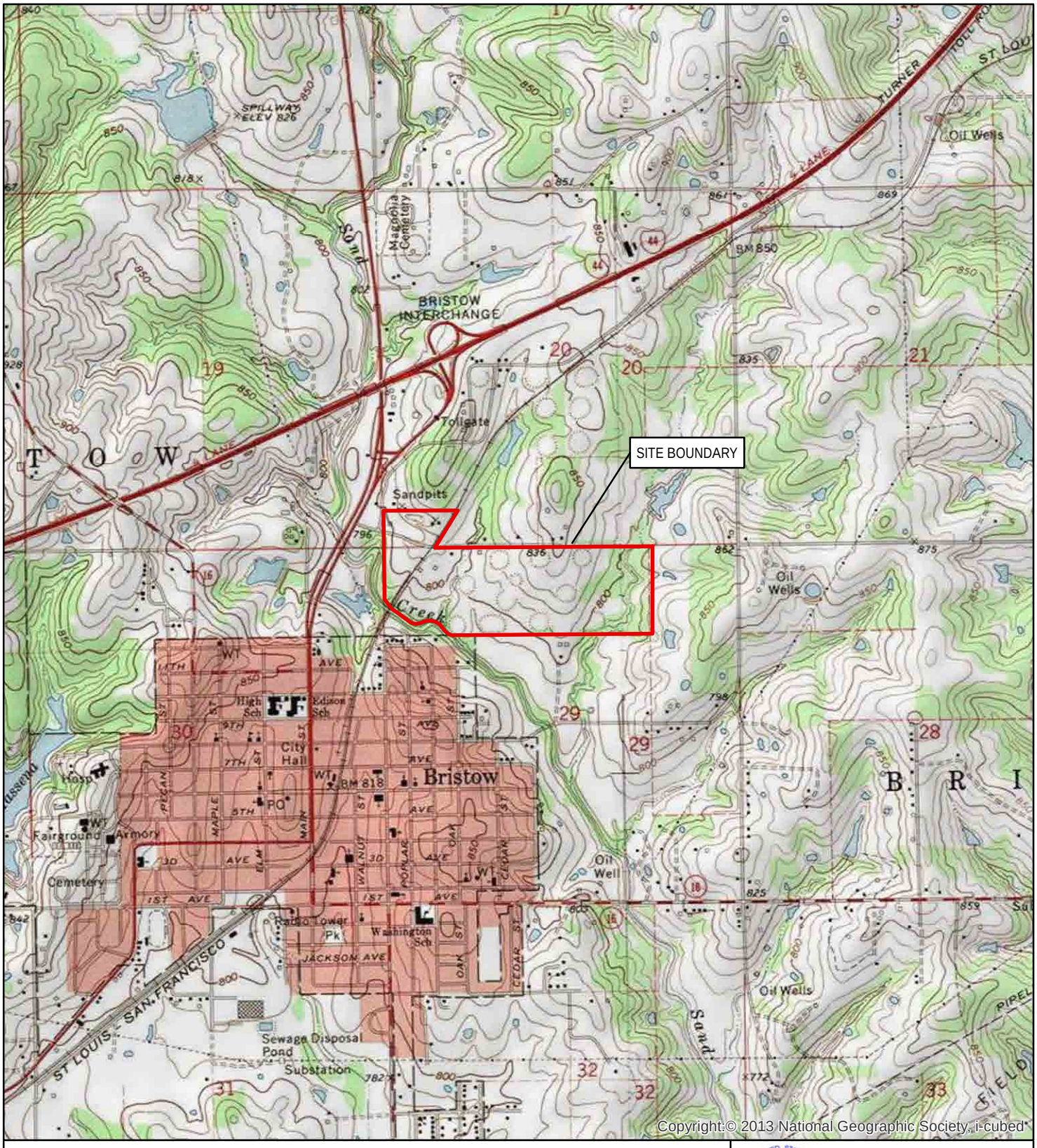
- North Tank Farm
- East Tank Farm
- Loading Dock Area

2.5 SITE CONCERNS

The site presents concerns regarding public health and the environment as a result of the following circumstances:

- Surface and subsurface soils contaminated with SVOCs (specifically benzo(a)pyrene) to depths of 24 inches exceeding the removal action level (0.11 mg/kg) established for the site.
- Exposure to hazardous substances could be from ingestion, skin absorption, and inhalation.

The COCs for Property 006 are SVOCs associated with former refinery operations.



0 2,000 4,000

Feet

LEGEND

Wilcox Oil Refinery Boundary

N

TDD NO: 0009/Weston-042-17-064
SEMS NO. OK0001010917

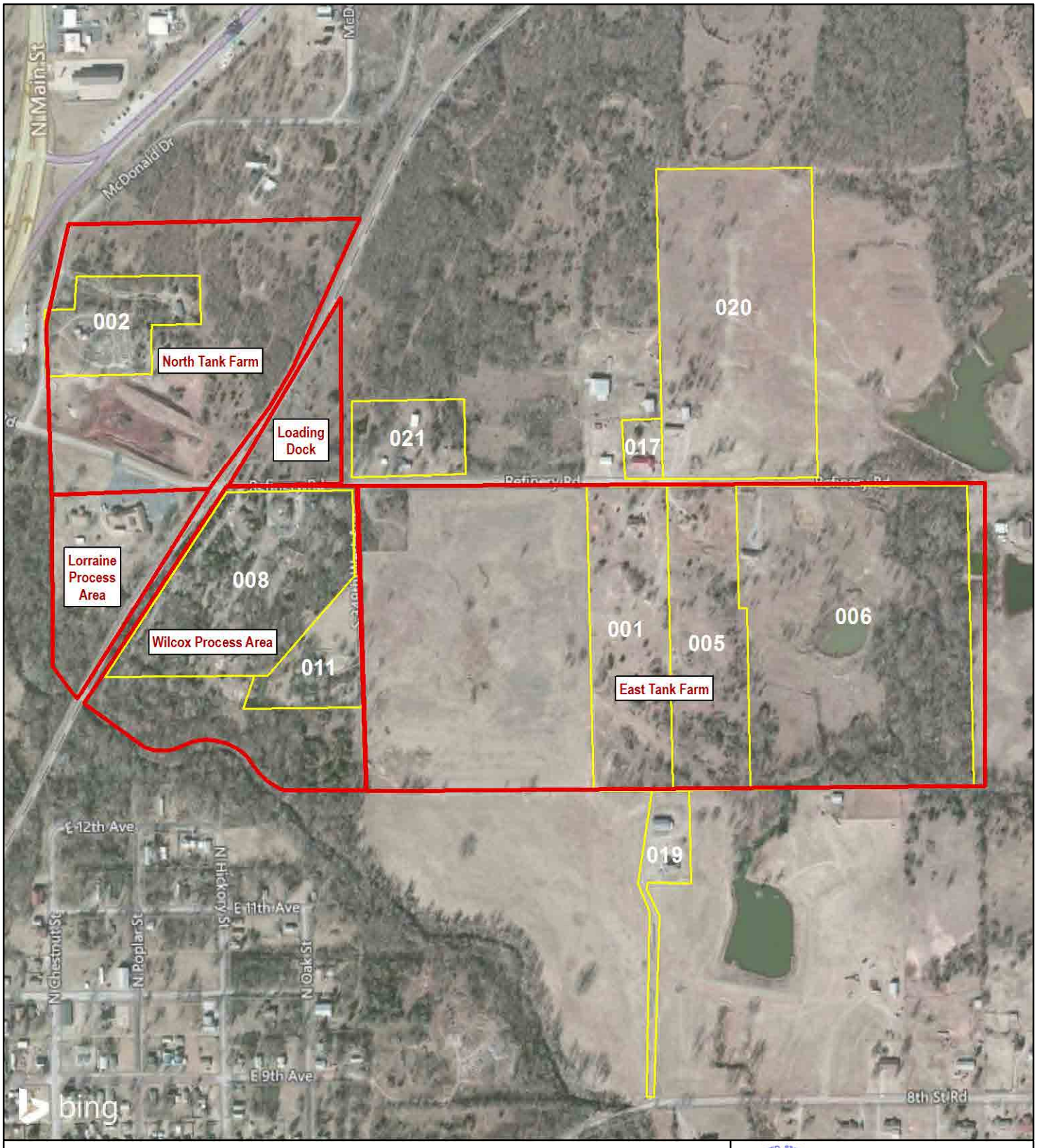
SOURCE: 2013 Esri Topographic Map

US EPA REGION 6

FIGURE 2-1
SITE AREA MAP
WILCOX OIL REFINERY
WEST 221st STREET SOUTH/
REFINERY ROAD
BRISTOW, CREEK COUNTY, OKLAHOMA

DATE	PROJECT NO	SCALE
AUGUST, 2017	20408.012.009.6064.01	AS SHOWN

FILE: L:\20406_START3_R6\WILCOX_OIL\GIS\MXDs\QASP Figures\Figure 2-1 Site Area Map.mxd 10:43:59 AM 8/8/2017 wilderj



0 575 1,150

Feet

LEGEND

Property Boundaries

Historical Site Areas

N

US EPA REGION 6

FIGURE 2-2
SITE PROPERTY MAP
WILCOX OIL REFINERY
WEST 221st STREET SOUTH/
REFINERY ROAD
BRISTOW, CREEK COUNTY, OKLAHOMA

DATE	PROJECT NO	SCALE
AUGUST, 2017	20408.012.009.6064.01	AS SHOWN

TDD NO: 0009/Weston-042-17-064
SEMS NO. OK0001010917

SOURCE: 2010 Microsoft Corporation and its data suppliers

FILE: L:\20406_START3_R6\WILCOX_OIL\GIS\MXDs\QASP Figures\Figure 2-2 Site Overview Map.mxd 10:53:29 AM 8/8/2017 wilderj

3. SAMPLING APPROACH AND PROCEDURES

The specific field investigation activities that will be conducted during the Wilcox Oil Refinery removal are presented in the following subsections. An overview of sampling activities, along with a discussion of data quality objectives, health and safety protocol, community relations, field activity meetings, and command post establishment are summarized in Subsection 3.1. Subsection 3.2 summarizes grid establishment, post excavation soil sampling, and quality control/quality assurance. Relevant START Standard Operating Procedures (SOPs) for field sampling methods are included in Appendix A.

3.1 OVERVIEW OF SAMPLING ACTIVITIES

Based on historical site data, a sampling strategy was developed to collect data necessary to evaluate and meet the objectives of the removal action. A Proposed Excavation Map is provided as Figure 3-1.

3.1.1 Data Quality Objective

The objective of the removal action is to remove the threat to human health and the environment posed by COCs resulting from historical site operations conducted at the Wilcox Oil Refinery Site at Property 006. To accomplish this, a data quality objective (DQO) for determining the presence or absence of site-related contaminated soils that are above or below the site-specific action level for this project was developed (Appendix B). This site-specific DQO was developed using the seven-step process set out in the *EPA Guidance for Quality Assurance Project Plans: EPA QA/G-5*.

3.1.2 Health and Safety Plan Implementation

START field activities will be conducted in accordance with a site-specific Health and Safety Plan (HASP) prepared for the Wilcox Oil Refinery removal action. START will coordinate its safety practices and procedures with EPA and ERRS. The HASP specifies that soil sampling activities will proceed in modified Level D personal protective equipment (PPE) including coveralls and/or long-sleeve shirts/pants, safety glasses, disposable gloves, and steel-toed boots. The PTL will act as the FSO and will be responsible for implementation of the HASP during START field activities.

START will be required to conduct work according to the guidelines and requirements of the HASP. In accordance with the START general health and safety operating procedures, the field team will also drive the route to the hospital specified in the HASP prior to initiating sampling activities.

3.1.3 Community Relations

Community relations may require additional EPA involvement due to the general nature of the site. Community relations issues will be directed to the EPA OSC. If the EPA OSC is not present, the START PTL, under the guidance of the Scope of Work (SOW) Leader, will manage community relations in the field as directed by the EPA OSC.

3.1.4 Field Activities Review Meeting

START will conduct a meeting with the entire field team to familiarize them with the project scope of work, discuss the planned field activities, roles and responsibilities, and review the project HASP and other relevant operating procedures. This meeting will be conducted prior to any site activities. It is anticipated that EPA, ERRS, and START will conduct daily planning meetings and document overall site activities and progress as necessary.

3.1.5 Mobilization and Command Post Establishment

START will mobilize the equipment required for the removal activities from the WESTON Regional Equipment Store (RES) warehouse located in Houston, Texas, and the EPA Warehouse located in Addison, Texas, as necessary.

3.2 SAMPLING/MONITORING APPROACH

Sampling will be conducted in general accordance with the *EPA Compendium of Emergency Response Team (ERT) Soil Sampling and Surface Geophysics Procedures* and with EPA ERT and START SOPs (Appendix A). WESTON SOPs include SOP No. 0110.01 and 1001.10 (Surface Soil Sampling and Composite Sampling). The specific sampling, decontamination, and sample handling procedures, including disposition of investigation-derived waste (IDW), are described in the following subsections. The following subsections describe the proposed sampling, sample

handling procedures, and field quality control (QC) samples for the removal action activities. The EPA OSC will be notified, and concurrence will be obtained if significant deviations from the planned sampling activities are proposed. Details regarding deviations of the QASP will be documented in the START site logbook.

3.2.1 Post-Excavation Soil Sampling

Upon completion of ERRS excavation activities, START will collect confirmation samples from the 100-foot by 100-foot systematic grids established across the site (Figure 3-1). ERRS will excavate 8 grids to depths ranging from 0 to 24 inches bgs. After ERRS excavation activities, START will collect approximately 10 confirmation soil samples (8 normal and 2 quality assurance samples) from 8 excavated grids.

Each sample will be collected from the bottom of the excavated grid and will consist of a 5-point composite sample. Samples will be collected using equipment and procedures appropriate to the matrix, parameters, and sampling objectives. Samples will be collected with dedicated (disposable) plastic scoops. The samples will then be stored in cleaned, unused glass or plastic containers and preserved in a manner appropriate to the analysis to be performed. Sampling personnel will change gloves between each sample collection/handling. The volume of the sample collected will be sufficient to perform the laboratory analysis requested. The composite samples will be placed in appropriate laboratory containers and labeled with appropriate sample nomenclature, and placed immediately on ice, prior to shipment to a laboratory for analysis (following SOP 1101.01 and 1102.01).

Information regarding sample management, sample nomenclature, decontamination, and sample preservation, containers and holding times can be found in Sections 3.3 and 3.4. Information regarding sample analysis and data validation is summarized in Section 4.

3.2.2 Field Quality Control Samples

START will collect field quality control samples as needed during the removal action according to SOPs 1005.01, 1005.02. Quality assurance/quality control (QA/QC) samples will be collected according to the following:

- Blind field duplicate samples will be collected during sample activities for locations selected by the PTL. The data obtained from these samples will be used to ensure the quality assurance of the sampling procedures and laboratory analytical data by following an evaluation of reproducibility of results. Efforts will be made to collect duplicate samples from an area co-located from the original sample location where there is visual evidence of contamination or where contamination is suspected. One duplicate sample will be collected for every 10 samples of the same matrix.

- Matrix Spike (MS)/Matrix Spike Duplicate (MSD) samples will be collected during the sample activities for locations selected by the PTL. The data obtained from these samples will be used to ensure the quality assurance of the sampling procedures and laboratory analytical data by following an evaluation of reproducibility of results. Efforts will be made to collect MS/MSD samples from an area co-located from the original sample location where there is visual evidence of contamination or where contamination is suspected. One MS and one MSD samples will be collected for every 20 samples of the same matrix.

- Temperature blanks will be prepared in the field and will consist of one 40-milliliter glass sample container with Teflon-lined septum cap. The temperature blank will be packaged along with the field samples in the shipping cooler and will represent the temperature of the incoming cooler upon receipt at the laboratory. Use of these samples within a shipping container enables the laboratory to assess the temperature of the shipment without disturbing any of the field samples.

3.3 SAMPLE MANAGEMENT

Specific nomenclature that will be used by START will provide a consistent means of facilitating the sampling and overall data management for the project (SOP 0110.05) The START Scope of Work Leader must approve any deviations from the sample nomenclature proposed below.

As stated in SOP 0110.05, sample nomenclature will follow a general format regardless of the type or location of the sample collected. The general nomenclature consists of the following components:

- Property/Site Identification (ID) or Area of Concern
- Grid ID
- Sample Collection Depth
- Collection Type (Soil, Field QC, etc.)
- QA/QC Type (Normal, Duplícate, etc.).

The following presents the sample nomenclature for analytical samples that will generate unique sample names compatible with most data management systems. The sample nomenclature is based upon specific requirements for reporting these results.

SAMPLE NOMENCLATURE - SOIL

Property ID - Grid ID - Depth - Collection Type + QC Type + Date

Where:

Property ID: An identifier used to designate the particular property or Area of Concern (AOC) where the sample was collected.

Grid ID: A two- or three-character alphanumeric code used to designate the particular grid or station within the AOC where the sample was collected.

Depth: A two-digit code used to designate what depth of sample was collected:

06	0 to 6 inches
18	6 to 18 inches
24	18 to 24 inches
48	24 to 48 inches

Collection Type: A one-digit code used to designate what type of sample was collected:

1	Surface Water	6	Oil
2	Groundwater	7	Waste
3	Leachate	8	Other
4	Field QC/Water Sample	9	Drinking Water
5	Soil	0	Sediment

QC Type: A one-digit code used to designate the QC type of the sample:

1	Normal	6	Confirmation
2	Duplicate	7	Confirmation Duplicate
3	Rinsate Blank		
4	Trip Blank		
5	Field Blank		

Date: An identifier used to designate the date of sample collection.

Examples:

- ***WOR006-D4-24-170811-56_***: Represents a confirmation soil sample collected from Wilcox Oil Refinery Property 006 from Grid D4 at a depth of 24 inches bgs on August 1, 2017.
- ***WOR006-D4-24-170811-57***: Represents the duplicate confirmation soil sample collected from Wilcox Oil Refinery Property 006 Grid D4 at a depth of 24 inches bgs on August 1, 2017.

Sample data management will be completed utilizing SCRIBE including chain of custody and sample documentation needs.

3.4 DECONTAMINATION

The non-disposable sampling equipment, if any, (hand trowels, stainless steel bowls, Geoprobe coring shoe, etc.) used during the sample collection process will be thoroughly pre-cleaned before initial use, between use, and at the end of the field investigation. Equipment decontamination, as described in SOP 1201.01, will be completed in the following steps:

- Water spray or brush, if needed, to remove soil/sediment from the equipment.
- Nonphosphate detergent and potable water wash to clean the equipment.
- Final potable water rinse.
- Equipment air-dried.

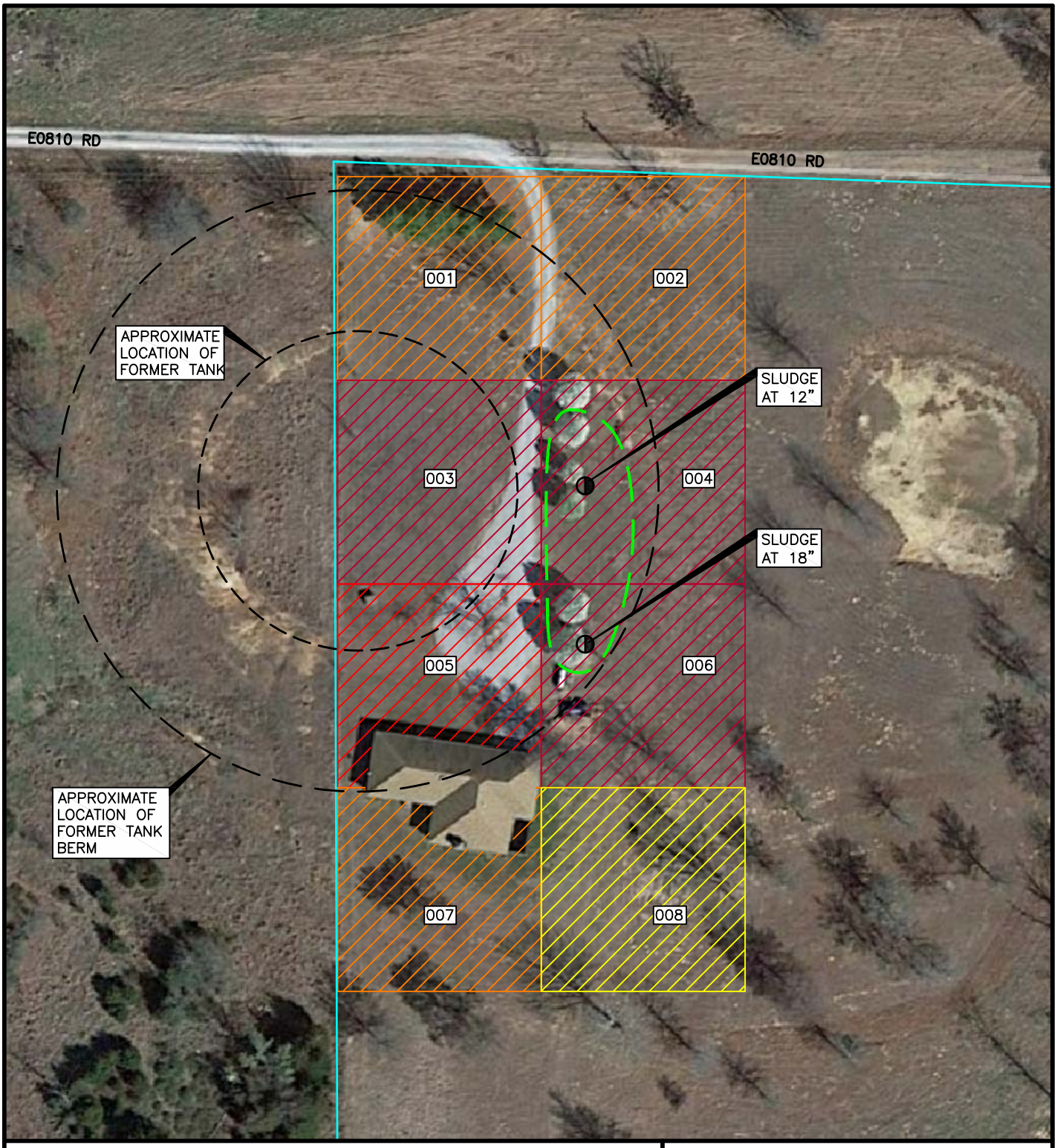
Personnel decontamination procedures will be described in the site-specific HASP that will be prepared by START prior to implementation of activities at the Site. All decontamination activities will be conducted at a temporary decontamination pad that will be constructed/designated in an area to be determined by the PTL.

3.5 SAMPLE PRESERVATION, CONTAINERS, AND HOLD TIMES

Sample preservation, containers, and holding times utilized during this Removal Action will be consistent with analytical methods and laboratory volume requirements as provided in Table 3-1. Once collected, samples will be stored in coolers and kept at approximately 4° C while at the site and until they are submitted for analysis. Chain-of-custody forms will be completed for each sample shipment and sent with the samples to the designated laboratory. Samples that have been analyzed will be disposed of by the designated laboratory in accordance with the laboratory SOPs.

Table 3-1
Requirements for Containers, Preservation Techniques,
Sample Volumes, and Holding Times
Wilcox Oil Refinery
Bristow, Creek County, Oklahoma

Name	Analytical Methods	Matrix	Container	Preservation	Minimum Volume or Weight	Maximum Holding Time
SVOCs	SW846 8270-SIM	Soil	Glass	4°C	8 oz.	14 days to extraction (soil)/ 40 days after extraction to analysis



LEGEND:

- PROPERTY BOUNDARY
- NO EXCEEDANCE REPORTED
- 00" DEPTH RESULT EXCEEDED
- 06" DEPTH RESULT EXCEEDED
- 12" DEPTH RESULT EXCEEDED
- 24" DEPTH RESULT EXCEEDED
- SLUDGE AFFECTED AREA

SOURCE: GOOGLE EARTH PRO AERIAL 2016.
SEMS No.: OK0001010917
TDD No.: 0009/WESTON-042-17-064

0 35 70
SCALE IN FEET

US EPA REGION 6

FIGURE 3-1
PROPOSED EXCAVATION MAP (PROPERTY 006)
WILCOX OIL REFINERY
WEST 221st STREET SOUTH/ REFINERY ROAD
BRISTOW, CREEK COUNTY, OKLAHOMA

DATE:	W.O. #	SCALE:
AUG 2017	20408.012.009.6064.01	AS SHOWN

H:\START III EPA\6064_Wilcox Oil\0713171257.dwg Aug 09, 2017 - 4:31pm

4. ANALYTICAL METHODS AND DATA VALIDATION

Soil samples will be submitted to a participating EPA laboratory for analytical analysis. Requested sample analysis will be indicated on the chain-of-custody form and will include the following method:

- SVOCs [benzo(a)pyrene] by EPA SW-846 Method 8270-SIM

Table 4-1 below illustrates the sample description and rationale.

Table 4-1
Sample Description and Rationale
Wilcox Oil Refinery
Wilcox, Creek County, Oklahoma

Sample Location	Sample Collection Method	Sample Depth	No. of Samples[1]	Rationale	EPA Analytical Method
Soil	Disposable Scoop Hand Trowel	24 inches bgs	10	To document the removal of site-specific constituents of concern in subsurface soil	SVOCs – EPA SW-846 Method 8270-SIM

Notes: [1]Soil Samples – 8 Normal and 2 QA/QC samples including field duplicates and MS/MSD samples.

Following analysis, the laboratory will provide preliminary deliverables data via email in PDF. The final data deliverable will include a full Contract Laboratory Program (CLP)-like data package (Level IV data package with QC and raw data) in PDF and a final Electronic Data Deliverable (EDD) in Microsoft Excel format. Initial data deliverables (preliminary results) will be based on a 1-business-day Turn-around Time (TAT), unless otherwise directed by the EPA OSC. The TAT criteria will be initiated when the sample group is received by the laboratory and continues until the data deliverable is submitted to START. The final Level IV data deliverable will be submitted by the laboratory based on a 10-business-day TAT.

START will validate the analytical data generated by the laboratory and provide an evaluation of QA/QC samples for reporting purposes. Data validation will be conducted in accordance with the EPA CLP *National Functional Guidelines for Organic Superfund Data Review – August 2014 (*EPA-S40-R-014-002) *and National Functional Guidelines for Inorganic Superfund Data Review – August 2014* (EPA-S40-R-013-001). A summary of the data validation findings will be

presented in Data Validation Summary Reports as part of the final report. The following will be evaluated to verify that the analytical data is within acceptable QA/QC tolerances:

- The completeness of the laboratory reports, verifying that required components of the report are present and that the samples indicated on the accompanying chain of custody are addressed in the report.
- The calibration and tuning records for the laboratory instruments used for the sample analyses.
- The results of internal standards analyses.
- The results of laboratory blank analyses.
- The results of laboratory control sample (LCS) analyses.
- The results of MS/MSD analyses.
- The results of surrogate recovery analyses.
- Compound identification and quantification accuracy.
- Laboratory precision, by reviewing the results for blind field duplicates.
- Variances from the QA/QC objectives will be addressed as part of the Data Validation Summary Reports.

5. QUALITY ASSURANCE

Quality Assurance (QA) will be conducted in accordance with the WESTON Corporate Quality Management Manual, dated October 2016; the WESTON START Quality Management Plan; and EPA Guidance for Performing Removal Actions under Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Following receipt of the TDD from EPA, a Quality Control (QC) officer will be assigned and will monitor work conducted throughout the entire project including reviewing interim report deliverables and field audits. The START PTL will be responsible for QA/QC of the field investigation activities. The designated laboratory utilized during the investigation will be responsible for QA/QC related to the analytical work. START will also collect samples to verify that laboratory QA/QC is consistent with the required standards and to validate the laboratory data received.

5.1 SAMPLE CHAIN-OF-CUSTODY PROCEDURES

START will utilize SCRIBE for the sample documentation and chain of custody preparation needs. Because of the evidentiary nature of sample collection, the possession of samples must be traceable from the time the samples are collected until they are introduced as evidence in legal proceedings. After sample collection and identification, the samples will be maintained under the chain-of-custody procedures. Personnel required to package and ship coolers containing potentially hazardous material will be trained accordingly.

The chain-of-custody procedures are documented in WESTON SOP 1101.01, and will be made available to personnel involved with the sampling. A typical chain-of-custody record included in SOP 1101.01 will be completed each time a sample or group of samples is prepared for shipment to the laboratory. The record will repeat the information on each of the sample labels and will serve as documentation of handling during shipment. A copy of this record will remain with the shipped samples at all times, and the member of the sampling team who originally relinquished the samples will retain another copy. START personnel will complete a chain-of-custody form for all samples sent to a designated off-site laboratory.

Samples relinquished to the participating laboratories will be subject to the following procedures for transfer of custody and shipment:

- The chain of custody record will accompany samples. When transferring possession of samples, the individuals relinquishing and receiving the samples will sign, date, and note the time of the sample transfer on the record. This custody record documents transfer of sample custody from the sampler to another person or to the laboratory.

- Samples will be properly packed for shipment and dispatched to the appropriate laboratory for analysis with separate, signed custody records enclosed in each sample box or cooler. Sample shipping containers will be custody-sealed for shipment to the laboratory. The preferred procedure includes use of a custody seal wrapped across filament tape that is wrapped around the package at least twice. The custody seal will then be folded over and stuck to the seal to ensure that the only access to the package is by cutting the filament tape or breaking the seal to unwrap the tape.

- If sent by common carrier, a bill of lading or air bill will be used. Bill of lading and air bill receipts will be retained in the project file as part of the permanent documentation of sample shipping and transfer.

SOPs 1101.01 and 1102.01, provided in Appendix A, describe these procedures in more detail.

5.2 PROJECT DOCUMENTATION

Documents will be completed legibly and in ink and by entry into field logbooks, Response Manager, or SCRIBE. Response Manager is the Enterprise Data Collection System designed to provide near real-time access to non-analytical data normally collected in logbooks. Response Manager provides a standard data collection interface for modules of data normally collected by START field personnel while on-site. These modules fall into two basic categories for response and removal. The modules include Emergency Response, Reconnaissance, Facility Assessment, Shipping, Containers, Materials, Calls, Household Hazardous Waste (HHW), and General/Site Specific data. The system provides users with a standard template for laptop/desktop/tablet PCs that will synchronize to the secure web interface using merge replication technology to provide access to field collected data via on the RRC-EDMS EPA Web Hub. Response Manager also includes an electronic template that provides some of the standard data entry templates from Response Manager to users for field data entry. Response Manager also includes an integrated Global Positioning System (GPS) unit with the secure electronic template, and the coordinates collected in Response Manager are automatically mapped on the RRC-EDMS interactive mapping

site. Geographic information system (GIS) personnel can then access this data to provide comprehensive site maps for decision-making support.

Response Manager also includes an Analytical Module that is designed to give SCRIBE users the ability to synchronize the SCRIBE field data to the RRC-EDMS Web Hub. This allows analytical data managers and data validators access to data to perform reviews from anywhere with an Internet connection. The Analytical Module is designed to take the analytical data entered into EPA SCRIBE software and make it available for multiple users to access on one site. START personnel will utilize SCRIBE for all data entry on-site and will upload to the Response Manager Analytical Module.

Field Documentation

The following field documentation will be maintained as described below.

Field Logbook

The field logbook is a descriptive notebook detailing site activities and observations so that an accurate, factual account of field procedures may be reconstructed. All entries will be signed by the individuals making them. Entries should include, at a minimum, the following:

- Site name and project number.
- Names of personnel on-site.
- Dates and times of all entries.
- Description of all site activities, including site entry and exit times.
- Noteworthy events and discussions.
- Weather conditions.
- Site observations.
- Identification and description of samples and locations.
- Subcontractor information and names of on-site personnel.
- Dates and times of sample collections and chain-of-custody information.
- Records of photographs.
- Site sketches.
- Calibration results.

Sample Labels

Sample labels will be securely affixed to the sample container. The labels will clearly identify the particular sample and include the following information:

- Site name and project number.
- Date and time the sample was collected.
- Sample preservation method.
- Analysis requested.
- Sampling location.

Chain-of-Custody Record

A chain of custody will be maintained from the time of sample collection until final deposition. Every transfer of custody will be noted and signed for and a copy of the record will be kept by each individual who has signed it.

Custody Seal

Custody seals demonstrate that a sample container has not been tampered with or opened. The individual who has custody of the samples will sign and date the seal and affix it to the container in such a manner that it cannot be opened without breaking the seal.

Photographic Documentation

START will take photographs to document site conditions and activities as site work progresses. Initial conditions should be well documented by photographing features that define the site-related contamination or special working conditions. Representative photographs should be taken of each type of site activity. The photographs should show typical operations and operating conditions as well as special situations and conditions that may arise during site activities. Site final conditions should also be documented as a record of how the site appears at completion of the work.

Photographs should be taken with either a film camera or digital camera capable of recording the date on the image. Each photograph will be recorded in the logbook and within Response Manager with the location of the photographer, direction the photograph was taken, the subject of the photograph, and its significance (i.e., why the picture was taken). Where appropriate, the

photograph location, direction, and subject will also be shown on a site sketch and recorded within Response Manager.

Response Manager

START will use the Response Manager module located on the EPA Web Hub, https://solutions.westonproject.net/epawebhub/, to compile and organize the data collected from project activities. The information to be included encompasses some or all of the following depending on the specific project needs:

- General Module – site-specific data including location and type of site. It also includes an area for key site locations including geo-spatial data associated with the key site locations.
- Emergency Response Module – includes the following sub-modules: Basic Info, HAZMAT, Release, Time Line Log, Incident Zones, Photos, Sensitive Receptors, Evacuations, Source, Cause, and Weather.
- Reconnaissance Module – provides standard templates with the flexibility of adding any additional questions of values to the drop-down lists for targeted reconnaissance efforts. Typically, the data in this module is associated with Emergency Support Function (ESF)-10 deployments and the cleanup of orphaned containers and hazardous debris, but the module can be utilized for any or all reconnaissance activities.
- Facility Assessment Module – provides standard templates with the flexibility of adding any additional questions of values to the drop-down lists for assessments of structures. Typically utilized for EPA regulated program facilities during an ESF-10 deployment of resources. This module can be utilized to track the assessment of any facilities including multiple assessments of the fixed facilities.
- Shipping Module – provides standard templates for creating a cradle-to-grave record of all waste shipments from the site until they are recycled or destroyed. This includes the ability to capture manifests and manifest line items and upload photos/original documents to support the records.
- Container Module – provides standard templates for cataloguing containers including HAZCAT and Layer information in each container. The module also allows for tracking which containers are bulked.
- Properties Module – provides standard templates with the flexibility of adding any additional questions of values to the drop-down lists for collection of property data including access

agreements and assessments of the property and current status of property regarding the site removal action.

- Materials Module – provides standard templates for tracking materials that are brought on-site or that are removed from the site.
- Daily Reports – provides standard templates for tracking daily site activities, daily site personnel, and daily site notes for reporting back to the EPA OSC in pollution reports (POLREP) or situation reports (SITREP).
- HHW Module – provides standard templates with the flexibility of adding any additional questions of values to the drop-down lists for tracking the amount of HHW collected at individual collection stations by HHW type.
- Data Files – data files can be uploaded in the photo module section and be associated with individual records or with the site in general. The meta-data associated with that data file can be filled in using the photo log fields.

The data stored in the Response Manager database can be viewed and edited by any individual with access rights to those functions. At any time deemed necessary, POLREP and/or SITREPs can be generated by exporting the data out of Response Manager into Microsoft Excel/Word. The database is stored on a secure server and backed up regularly.

5.3 REPORT PREPARATION

At the completion of the project, START will review and validate laboratory data and prepare a draft report of field activities and analytical results for EPA OSC review. Draft deliverable documents will be uploaded to the EPA TeamLink website for EPA OSC review and comment.

Appendix A

Standard Operating Procedures

INTRODUCTION

The following Standard Operating Procedure (SOP) presents the sample nomenclature for analytical samples that will generate unique sample names compatible with most data management systems. The sample nomenclature is based upon specific requirements for the reporting of these results. A site specific data management plan should be prepared prior to sample collection.

PROCEDURE

SAMPLE NOMENCLATURE – SOIL AND SEDIMENT

Area of Concern – ID – Depth - Collection Type + QC Type

Where:

Area of Concern: A four-digit identifier used to designate the particular Area of Concern (AOC) that the location where the sample was collected.

ID: A three-digit identifier used to designate the particular location in the AOC from which the sample was collected or the center of the composite sample.

Depth: A two-digit code used to designate what depth of sample was collected:

03	0 to 3 inches
06	3 to 6 inches
12	6 to 12 inches

Collection Type: A one-digit code used to designate what type of sample was collected:

1	Surface Water
2	Ground Water
3	Leachate
4	Field QC/water sample
5	Soil/Sediment

6	Oil
7	Waste
8	Other
9	Drinking Water

QC Type: A one-digit code used to designate the QC type of the sample:

1	Normal
2	Duplicate
3	Rinsate Blank
4	Trip Blank
5	Field Blank
6	Confirmation

Examples:

- ***2054-055-06-51:*** Represents the normal soil sample collected from AOC 2054 at location 055 from 3 to 6 inches of depth.
- ***2054-055-06-52***: Represents the duplicate soil sample collected from AOC 2054 at location 055 from 3 to 6 inches of depth.
- ***2054-055-06-43***: Represents the rinsate water sample collected after the last sample of the day if last sample was collected from AOC 2054 at location 055 from 3 to 6 inches of depth.

SAMPLE NOMENCLATURE – WATER (from fixed station or location to be sampled more than once)

WELL OR STATION – YYYYMMDD - Collection Type + QC Type

Where:

Well or Station: For Wells and boreholes always assume there will be 10 or more so Monitoring Well 1 becomes designated MW01 or MW-01. If it is anticipated that there will be over 100 wells designate Monitoring Well 1 as MW001 or MW-001.

YYYYMMDD: A four-digit year + two-digit month + two-digit day

Collection Type: A one-digit code used to designate what type of sample was collected and are shown on page 1.

QC Type: A one-digit code used to designate the QC type of the sample and are shown on page 1.

Examples:

- ***MW01-20090226-21:*** Represents the normal groundwater sample collected from Monitoring Well 1 on 26 February 2009.
- ***MW01-20090226-44:*** Represents the trip blank in the same ice chest as the groundwater sample in the previous collected from Monitor Well 1 on 02/26/2009. All trip blanks must have a sample ID and they must be unique and on the Chain-of -Custody.
- ***2054-000-00-43:*** Represents the rinsate sample from AOC 2054

INTRODUCTION

The following Standard Operating Procedure (SOP) presents the sample nomenclature for analytical samples that will generate unique sample names compatible with most data management systems. The sample nomenclature is based upon specific requirements for the reporting of these results. A site specific data management plan should be prepared prior to sample collection.

PROCEDURE

SAMPLE NOMENCLATURE – SOIL AND SEDIMENT

Area of Concern – ID – Depth - Collection Type + QC Type

Where:

Area of Concern: A four-digit identifier used to designate the particular Area of Concern (AOC) that the location where the sample was collected.

ID: A three letter &/or digit identifier used to designate the particular location (i.e. grid A01, P06, or 055) in the AOC from which the sample was collected or the center of the composite sample.

Depth: A two-digit code used to designate what depth of sample was collected:

code	Assessment	Confirmation
00	0 to 0 Surface	N/A
03	0 to 3 inches	3 inches below original ground surface
06	3 to 6 inches	6 inches below original ground surface
12	6 to 12 inches	12 inches below original ground surface

Collection Type: A one-digit code used to designate what type of sample was collected:

1	Surface Water	6	Oil
2	Ground Water	7	Waste
3	Leachate	8	Other
4	Field QC/water sample	9	Drinking Water
5	Soil/Sediment		

QC Type: A one-digit code used to designate the QC type of the sample:

1	Normal
2	Duplicate
3	Rinsate Blank
4	Trip Blank
5	Field Blank
6	Confirmation, Normal
7	Confirmation, Duplicate

Examples:

- ***2054-055-06-51:*** Represents the normal soil sample collected from AOC 2054 at location 055 from 3 to 6 inches of depth.
- ***2054-055-06-52***: Represents the duplicate soil sample collected from AOC 2054 at location 055 from 3 to 6 inches of depth.

- ***2054-000-00-43:*** Represents the rinsate sample from AOC 2054

- ***2054-055-06-56***: Represents the normal soil sample collected from AOC 2054 at location 055 after 6 inches of material has been removed as the confirmation sample during removal.

  NOTE: The depth is in relation to the original ground surface.

- ***2054-055-06-43***: Represents the rinsate water sample collected after the last sample of the day if last sample was collected from AOC 2054 at location 055 from 3 to 6 inches of depth.

SAMPLE NOMENCLATURE – WATER (from fixed station or location to be sampled more than once)

WELL OR STATION – YYMMDD - Collection Type + QC Type

Where:

Well or Station: For Wells and boreholes always assume there will be 10 or more so Monitoring Well 1 becomes designated MW01 or MW-01. If it is anticipated that there will be over 100 wells designate Monitoring Well 1 as MW001 or MW-001. For stations along a water pathway use stations from the furthest most upstream point and travel downstream in 100 ft. increments (i.e. point of probable entry would be Station 0+00 or ST000; 525 ft. downstream would be 5+25 or ST525)

YYYYMMDD: A four-digit year + two-digit month + two-digit day

Collection Type: A one-digit code used to designate what type of sample was collected and are shown on page 1.

QC Type: A one-digit code used to designate the QC type of the sample and are shown on page 1.

Examples:

- ***ST100-100226-21:*** Represents the normal groundwater sample collected from Station 1+00 on 26 February 2010.
- ***MW01-100226-44:*** Represents the trip blank in the same ice chest as the groundwater sample from Monitor Well 1 on 02/26/2010. All trip blanks must have a sample ID and they must be unique and on the Chain-of -Custody.

SOP	**1001.10**				
GROUP	Soil Sampling Procedures				
SUB-GROUP					
TITLE	Soil Compositing				
DATE	4/24/2013	**FILE**	Compositing Soil Sampling - Revised 1001-10	**PAGE**	1 of 2

INTRODUCTION

The following Standard Operating Procedure (SOP) describes the procedure for compositing soil samples. Soil samples are typically collected for laboratory analysis, and sometimes it is necessary to composite (mix together) samples from several locations for one combined analysis at the laboratory. This soil sampling procedure is closely related to SOP Nos. 1001.01, 1001.03, and 1001.10 regarding soil sampling procedures. This procedure serves as an alternative method of sample preparation prior to placing the samples in containers, as described in the other named SOPs.

PROCEDURE

Equipment

Equipment that may be used as part of the soil compositing procedure is identified under SOP Nos. 1001.01 and 1001.03 where soil sampling methods are described. Specific equipment typically used during the compositing process after discrete samples are collected includes:

- Mixing bowls or buckets
- Scoops, spatulas, and knives
- Sample containers
- Personal protection clothing
- Plastic Sheeting
- Decontamination equipment and supplies

Method

The procedure to be used to physically collect soil samples are described in SOP Nos. 1001.01 and 1001.03. Reference should be made to these SOPs for specific sampling equipment, procedures, and other general guidelines. As soil samples are collected, the site-specific Sampling and Analysis Plan may require compositing (mixing together) of two or more samples to create a single sample that will be sent to the laboratory for analysis. When this is the case, the following compositing procedure will generally be used:

- The soil will be collected in general accordance with SOP 1001.01 or 1001.03, with the exception that samples from discrete locations will generally not be immediately placed into sample containers and an additional preparation step (i.e., compositing) will be performed.

- As they are collected, soil samples selected for compositing will be staged in a clean mixing bowl or mixing bucket until each sample to be included in the composite sample is obtained. Depending on site requirements and analytical procedures to be requested, it may be necessary to temporarily stage individual discrete-location samples within clean sample jars, aluminum foil, or other appropriate materials for the project. The method for sample staging should be specified in the site-specific sampling and analysis plan.

- For composite samples that will be analyzed for volatile organic compounds, an equal portion of soil will be removed directly from each discrete-location sample and placed into a final sample jar without homogenizing the soil.

- For analyses other than volatile organics, equal portions of soil will be removed from each discrete-location sample and placed in a clean mixing bowl. The equal portions of the samples will then be broken up and homogenized together using a scoop or spatula. Homogenization will generally continue until the discrete samples being combined are reasonably indistinguishable as individual samples in the soil mixture. However, it is recognized that homogenization can be difficult for highly plastic clays. In this case, equal amounts of the soil core of each clay sample will be cut into small, roughly cubical pieces using a stainless steel knife, and an equal numbers of pieces of each discrete sample will be placed into the bowl and homogenized to extent practical.

- The composited soil sample will be collected from the mixing bowl containing the individual homogenized samples after homogenization is performed. The composited sample will be collected using a stainless steel or disposable plastic scoop or similar tool. The sample will be placed in a clean sample container and then handled in accordance with soil sampling SOPs 1001.01 and 1001.03.

Variations on this procedure are allowable to accommodate different soil conditions and any site requirements specifically identified in the site-specific Sampling and Analysis Plan.

The number of discrete samples that may be composited into a single sample typically ranges from two to six. The number of discrete samples that may be composited for the project in question will be specified in the site-specific Sampling and Analysis Plan.

REFERENCES

SOP No. 1001.01 - Standard Operating Procedure, Surface Soil Sampling
SOP No. 1001.03 - Standard Operating Procedure, Shallow Subsurface and Near Surface Soil Sampling

SOP	**1101.01**				
GROUP	Sampling Handling				
SUB-GROUP	Sample Custody				
TITLE	Sample Custody in the Field				
DATE	**11/19/2001**	**FILE**	1101-01.DOC	**PAGE**	1 of 4

INTRODUCTION

The following Standard Operating Procedure (SOP) presents procedures for maintaining sample chain of custody (COC) during activities where samples are collected.

PROCEDURE

Sample custody is defined as being under a person's custody if any of the following conditions exist:

- it is in their possession,
- it is in their view, after being in their possession,
- it was in their possession and they locked it up, or
- it is in a designated secure area.

A designated field sampler will be personally responsible for the care and custody of collected samples until they are transferred to another person or properly dispatched to the laboratory. To the extent practicable, as few people as possible will handle the samples.

Sample tags or labels will be completed and applied to the container of each sample. When the tags or labels are being completed, waterproof ink will be used. If waterproof ink is not used, the tags or labels will be covered by transparent waterproof tape. Sample containers may also be placed in Ziploc-type storage bags to help keep them clean in the cooler. Information typically included on the sample tags or labels will include the following:

- Project Code
- Station Number and Location
- Sample Identification Number
- Date and Time of Sample Collection
- Type of Laboratory Analysis Required
- Preservation Required, if applicable
- Collector's Signature
- Priority (optional)
- Other Remarks

Additonal information may include:

- Anticipated Range of Results (Low, Medium, or High)
- Sample Analysis Priority

A COC form will be completed each time a sample or group of samples is prepared for transfer to the laboratory. The form will repeat the information on each of the sample labels and will serve as documentation of handling during shipment. The minimum information requirements of the COC form are listed in Table 1101.01-A. An example COC form is shown in Figure 1101.01-A. The completed COC must be reviewed by the Field Team Leader or Site Manager prior to sample shipment. The COC form will remain each sample shipping container at all times, and another copy will be retained by the member of the sampling team who originally relinquished the samples or in a project file.

TABLE 1101.01-A CHAIN OF CUSTODY FORM

INFORMATION	COMPLETED BY	DESCRIPTION
COC	Laboratory	enter a unique number for each chain of custody form
SHIP TO	Field Team	enter the laboratory name and address
CARRIER	Field Team	enter the name of the transporter (e.g., FedEx) or handcarried
AIRBILL	Field Team	enter the airbill number or transporter tracking number (if applicable)
PROJECT NAME	Field Team	enter the project name
SAMPLER NAME	Field Team	enter the name of the person collecting the samples
SAMPLER SIGNATURE	Field Team	signature of the person collecting the samples
SEND RESULTS TO	Field Team	enter the name and address of the prime contractor
FIELD SAMPLE ID	Field Team	enter the unique identifying number given to the field sample (includes MS, MSD, field duplicate and field blanks)
DATE	Field Team	enter the year and date the sample was collected in the format M/D (e.g., 6/3)
TIME	Field Team	enter the time the sample was collected in 24 hour format (e.g., 0900)
MATRIX	Field Team	enter the sample matrix (e.g., water, soil)
PRESERVATIVE	Field Team	enter the preservative used (e.g., HNO3) or "none"
FILTERED/ UNFILTERED	Field Team	enter "F" if the sample was filtered or "U" if the sample was not filtered
CONTAINERS	Field Team	enter the number of containers associated with the sample
MS/MSD	Field Team or Laboratory	enter "X" if the sample is designated for the MS/MSD
ANALYSES REQUESTED	Field Team	enter the method name of the analysis requested (e.g., SW6010A)
COMMENTS	Field Team	enter comments
SAMPLE CONDITION UPON RECEIPT AT LABORATORY	Laboratory	enter any problems with the condition of any sample(s)
COOLER TEMPERATURE	Laboratory	enter the internal temperature of the cooler, in degrees C, upon opening
SPECIAL INSTRUCTIONS/COMMENTS	Laboratory	enter any special instructions or comments
RELEASED BY (SIG)	Field Team and Laboratory	enter the signature of the person releasing custody of the samples
COMPANY NAME	Field Team and Laboratory	enter the company name employing the person releasing/receiving custody
RECEIVED BY (SIG)	Field Team and Laboratory	enter the signature of the person receiving custody of the samples
DATE	Field Team and Laboratory	enter the date in the format M/D/YY (e.g., 6/3/96) when the samples were released/received
TIME	Field Team and Laboratory	enter the date in 24 hour format (e.g., 0900) when the samples were released/received

FIGURE 1101.01-A CHAIN OF CUSTODY FORM

SOP	**1102.01**				
GROUP	Sample Handling				
SUB-GROUP	Sample Shipping				
TITLE	Sample Shipping				
DATE	11/19/2001	**FILE**	1102-01.DOC	**PAGE**	1 of 1

INTRODUCTION

The following Standard Operating Procedure (SOP) presents the procedures for sample shipping that will be implemented during field work involving sampling activities.

TERMS

COC - Chain-of-Custody

PROCEDURE

Prior to shipping or transferring custody of samples, they will be packed according to D.O.T. requirements with sufficient ice to maintain an internal temperature of 4°C ± 2°C during transport to the laboratory. Samples relinquished to the participating laboratories will be subject to the following procedures for transfer of custody and shipment:

1. Samples will be accompanied by a COC record. When transferring possession of samples, the individuals relinquishing and receiving the samples will sign, date, and note the time of the sample transfer on the record. If sent by common carrier, a bill of lading or airbill should be used. Bill of lading and airbill receipts will be retained in the project file as part of the permanent documentation of sample shipping and transfer. This custody record documents transfer of sample custody from the sampler to another person or to the laboratory. The designated laboratory will accept custody in the field upon sample pick-up or at the laboratory if the samples are delivered via field personnel or a courier service.
2. Samples will be properly packed in approved shipping containers for laboratory pick-up by the appropriate laboratory for analysis, with separate, signed custody records enclosed in each sample box or cooler. Sample shipping containers will be padlocked or custody-sealed for transfer to the laboratory. The preferred procedure includes use of a custody seal wrapped across filament tape that is wrapped around the package at least twice. The custody seal will then be folded over and stuck to itself so that the only access to the package is by cutting the filament tape or breaking the seal to unwrap the tape. The seal will then be signed. The designated laboratory will accept custody of the samples upon receipt.
3. Whenever samples are split with state representatives or other parties, the COC record will be marked to indicate with whom the samples were split.
4. The field sampler will call the designated laboratory to inform them of sample shipment and verify sample receipt as necessary.

INTRODUCTION

The following Standard Operating Procedure (SOP) presents the methods used for minimizing the potential for cross-contamination, and provides general guidelines for sampling equipment decontamination procedures.

PROCEDURE

As part of the Health and Safety Plan (HASP), develop and set up a decontamination plan before any personnel or equipment enter the areas of potential exposure. The decontamination plan should include the following:

- The number, location, and layout of decontamination stations
- Which decontamination apparatus is needed
- The appropriate decontamination methods
- Methods for disposal of contaminated clothing, apparatus, and solutions

Decontamination Methods

Personnel, samples, and equipment leaving the contaminated area of a site will be decontaminated. Various decontamination methods will be used to either physically remove contaminants, inactivate contaminants by disinfection or sterilization, or both. The physical decontamination techniques appropriate for equipment decontamination can be grouped into two categories: abrasive methods and non-abrasive methods.

Abrasive Cleaning Methods

Abrasive cleaning methods work by rubbing/scrubbing the surface containing the contaminant. This method includes mechanical and wet blasting methods.

Mechanical cleaning methods use brushes of metal or nylon. The amount and type of contaminants removed will vary with the hardness of bristles, length of brushing time, and degree of brush contact.

Cleaning can also be accomplished by water blasting which is also referred to as steam cleaning and pressure washing. Pressure washing utilizes high-pressure that is sprayed from a nozzle onto sampling equipment to physically remove soil or (potentially) contaminated material. Steam cleaning is a modification of pressure washing where the water is heated to temperatures approaching 100°C to assist in removing organic constituents from equipment.

Disinfection/Rinse Methods

Disinfectants are a practical means of inactivating chemicals or contaminants of concern. Standard sterilization methods involve heating the equipment which is impractical for large equipment. Rinsing removes contaminants through dilution, physical attraction, and solubilization.

The use of distilled/deionized water commonly available from commercial vendors may be acceptable for decontamination of sampling equipment provided that it has been verified by laboratory analysis to be target analyte free. Tap water may be used from any municipal water treatment system for mixing of decontamination solutions. An untreated potable water supply is not an acceptable substitute for tap water. Acids and solvents are occasionally utilized in decontamination of equipment to remove metals and organics, respectively, from sampling equipment. Other than ethanol, these are avoided when possible due to the safety, disposal, and transportation concerns associated with them.

Equipment or apparatuses that may be selected for use include the following:

- Personal protective clothing
- Non-phosphate detergent
- Selected solvents for removal of polar and nonpolar organics (ethanol, methanol, hexane)
- Acid washes for removal of metals (nitric acid)
- Long-handled brushes
- Drop cloths or plastic sheeting
- Paper towels
- Galvanized tubs or buckets
- Distilled, deionized, or tap water (as required by the project)
- Storage containers for spent wash solutions
- Sprayers (pressurized and non-pressurized)
- Trash bags
- Safety glasses or splash shield

<u>Field Sampling Equipment Cleaning Procedures</u>

The following procedures should be followed:

1. Where applicable, follow physical removal procedures previously described (pressure wash, scrub wash)
2. Wash equipment with a non-phosphate detergent solution
3. Rinse with tap water
4. Rinse with distilled or deionized water
5. Rinse with 10% nitric acid if the sample will be analyzed for metals/organics
6. Rinse with distilled or deionized water
7. Use a solvent rinse (pesticide grade) if the sample will be analyzed for organics
8. Air dry the equipment completely
9. Rinse again with distilled or deionized water

10. Place in clean bag or container for storage/transport to subsequent sampling locations.

Selection of the solvent for use in the decontamination process is based on the contaminants present at the site. Solvent rinses are not necessarily required when organics are not a contaminant of concern and may be eliminated from the sequence specified below. Similarly, an acid rinse is not required if the analyses do not include inorganics. Use of a solvent is required when organic contamination is present on-site. Typical solvents used for removal of organic contaminants include acetone, ethanol, hexane, methanol, or water. An acid rinse step is required if metals are present on-site. If a particular contaminant fraction is not present at the site, the ten-step decontamination procedure listed above may be modified for site specificity.

Sampling equipment that requires the use of plastic tubing should be disassembled and the tubing replaced with clean tubing before commencement of sampling and between sampling locations. Plastic tubing should not be reused.

SOP	**1005.02**				
GROUP	Sampling Procedures				
SUB-GROUP	Field QA/QC Sampling				
TITLE	Rinse Blank Preparation				
DATE	2/6/2009	**FILE**	1005-02.DOC	**PAGE**	1 of 1

INTRODUCTION

The following Standard Operating Procedure (SOP) presents a method to prepare a type of quality control sample specific to the field decontamination process, the equipment rinse blank. The rinse blank provides information on the effectiveness of the decontamination process employed in the field. When used in conjunction with field blanks and trip blanks, the rinse blank can be used to assist in evaluating possible compromise of samples from field related activities.

PROCEDURE

The equipment rinse blank is prepared by passing target analyte-free (i.e., deionized) water over and through a field decontaminated sampling device, then collecting the rinse water in appropriate clean sample containers. Rinse blanks will typically be collected from equipment that comes in contact with samples, such as auger buckets, split spoons, bailers, shelby tubes, and stainless steel spoons/trowels. The collected sample will be coded appropriately prior to logging and shipping. Equipment blanks are not required if dedicated sampling equipment is used. Equipment blanks will be collected periodically during the day immediately after decontamination of the sampling equipment being used.

The frequency for collecting equipment blanks will be determined prior to engaging in field activities, and communicated in site-specific quality assurance project plans, sampling and analyses plans, or a type of work plan. Equipment blanks will be collected at a rate relative to each type of sample collection procedure (i.e., surface sample, sample at depth using a hand auger). Equipment blanks will generally be collected at a frequency of 1 per 20 (normal) samples of a given matrix.

SOP	**1005.01**				
GROUP	Sampling Procedures				
SUB-GROUP	Field QA/QC Sampling				
TITLE	Field Duplicate Collection				
DATE	4/27/2005	**FILE**	1005-01.DOC	**PAGE**	1 of 2

INTRODUCTION

The following Standard Operating Procedure (SOP) describes the procedure for collecting field duplicate soil and water samples. When samples are collected for analysis, it is typically desired that independent data allowing evaluation of laboratory precision (i.e., the degree to which a laboratory result can be repeated) on site-specific samples be collected.

A field duplicate sample is a second sample collected at the same location as the original sample. Duplicate samples are collected simultaneously or in immediate succession, using identical recovery techniques, and treated in an identical manner during storage, transportation, and analysis. The sample containers are assigned an identification number in the field such that they cannot be identified (blind duplicate) as duplicated samples by laboratory personnel performing the analysis. Specific locations are designated for collection of field duplicate samples prior to the beginning of sample collection.

The duplicate soil sampling procedure is closely related to SOP Nos. 1001.01, 1001.03, and 1001.10 regarding soil sampling procedures. This procedure serves as an alternative method or extension of sample preparation prior to placing the samples in containers, as described in the 1001 series of the SOPs (e.g. 1001.01 and 1001.03).

DUPLICATE SOIL SAMPLING PROCEDURE

The procedure to be used to physically collect soil samples are described in SOP Nos. 1001.01 and 1001.03. Reference should be made to these SOPs for specific sampling equipment, procedures, and other general guidelines. As soil is collected, the following procedure will be used to prepare a field duplicate sample:

- The soil will be collected in general accordance with SOP 1001.01 or 1001.03, with the exception that samples will generally not be immediately placed into sample containers and an additional preparation step (i.e., sample splitting) will be performed.

- As they are collected, soil samples to be submitted as field duplicates will be staged in a clean mixing bowl or mixing bucket.

- For samples that will be analyzed for volatile organic compounds, the soil sample will be split in half and an equal portion of soil will be placed directly into two or more different sample containers, each container representing a different sample for laboratory analysis. The soil will not be homogenized to minimize the potential for volatilization of the organic compounds potentially in the sample.

- For analyses of chemicals other than volatile organic compounds, the soil removed from the discrete sample location will be homogenized in a clean mixing bowl using a clean scoop or spatula (as described in SOPs 1001.01 and 1001.03). Homogenization will generally continue until the discrete samples being combined are reasonably indistinguishable as individual samples in the soil mixture. However, it is recognized that homogenization can be difficult for highly plastic clays. In this case, equal amounts of the soil core of each clay sample will be cut into small, roughly cubical pieces using a stainless steel knife and placed into a bowl and homogenized to extent practical.

- The field duplicate sample (except for volatiles as note above) will be collected from the mixing bowl containing the homogenized samples after homogenization is performed. The composited sample will be collected using a stainless steel or disposable plastic scoop or similar tool. The sample will be placed in a clean sample container and then handled in accordance with soil sampling SOPs 1001.01 and 1001.03.

Another difference from the referenced SOPs is that additional soil volume may need to be collected from a discrete sample location during the sampling process to provide sufficient sample volume for two or more sets of laboratory analyses. If the collection of additional sample volume will result in the sample interval expanding to greater depths or laterally outward, the sampling tools identified in 1001 series of the SOPs can be used at two immediately vertically or laterally adjacent locations, as appropriate. If sampling from two adjacent but distinct locations is necessary to obtain adequate sample volume, the soil from the two locations should be composited in accordance with SOP 1001.10. Field duplicates of composited samples may also be performed using this SOP for field duplicate samples.

Variations on this procedure are allowable to accommodate different soil conditions and any site requirements specifically identified in the site-specific Sampling and Analysis Plan. Equipment that may be used as part of the soil compositing procedure is identified under SOP Nos. 1001.01 and 1001.03 where soil sampling methods are described.

DUPLICATE WATER SAMPLING PROCEDURES

The procedure to be used to physically collect water samples are described in 1002 series of the SOPs (e.g. 1002.01 and 1002.02). Reference should be made to these SOPs for specific sampling equipment, procedures, and other general guidelines. A duplicate water sample will be collected from the same location as the parent sample and within 15 minutes of the collection of the parent sample.

The number of samples that may be submitted as blind field duplicates for the project in question will be specified in the site-specific sampling plan. Blind field duplicates are typically collected at a frequency of 1 per 10 samples of a given environmental media at sites, especially where laboratory analytical data will be used for evaluating regulatory compliance and other engineering judgments. Sampling in support of a routine monitoring program may not require field duplicates. Reference should be made to the site-specific contract and work plans.

REFERENCES

SOP No. 1001.01 - Standard Operating Procedure, Surface Soil Sampling
SOP No. 1001.03 - Standard Operating Procedure, Soil Sampling - Hand Auger Method
SOP No. 1001.10 - Standard Operating Procedure, Soil Compositing

APPENDIX B

SITE-SPECIFIC DATA QUALITY OBJECTIVE

(DQO)

Appendix B
Data Quality Objective No. 1 – Soil Sampling
R6 Wilcox Oil Refinery Removal
Bristow, Creek County, Oklahoma

STEP 1. STATE THE PROBLEM	
Former site operations associated with the Wilcox Oil Refinery Site resulted in site-related contaminated soil that was identified as a risk to human health and the environment. The documented contaminant of concern (COC) is Benzo(a)pyrene. A removal action will be conducted to remove contaminated soil up to 2 feet below ground surface (bgs) and document COC concentrations at the extent of the excavations.	
STEP 2. IDENTIFY THE DECISION	
Are the concentrations of constituents of concern in soils, represented by a sample, above specified action levels?	
IDENTIFY THE ALTERNATIVE ACTIONS THAT MAY BE TAKEN BASED ON THE DECISIONS.	▪ If the site-related COC in the excavation soil sample collected from the grid exceeds the site action levels, grid excavation will continue to a maximum depth of 2 feet bgs. A warning barrier will be installed prior to backfilling the excavation area in all grid areas excavated to a depth of 2 feet bgs. ▪ If no site-related COCs in the confirmation samples exceed the site actions levels, the grid area represented by that sample will not require additional excavation.
STEP 3. IDENTIFY INPUTS TO THE DECISION	
IDENTIFY THE INFORMATIONAL INPUTS NEEDED TO RESOLVE A DECISION.	▪ Contaminant concentrations in confirmation soil samples collected following excavation of grids identified during the 2015 removal assessment.
IDENTIFY THE SOURCES FOR EACH INFORMATIONAL INPUT AND LIST THE INPUTS THAT ARE OBTAINED THROUGH ENVIRONMENTAL MEASUREMENTS.	▪ Five-point composite grab samples collected to represent a 100-foot by 100-foot grid. ▪ Analytical results obtained from the laboratory following SVOCs - SW-846 Method 8270-SIM.
BASIS FOR THE CONTAMINANT-SPECIFIC ACTION LEVELS.	• The site action levels as noted in Table 1-1 of the QASP.
IDENTIFY POTENTIAL SAMPLING TECHNIQUES AND APPROPRIATE ANALYTICAL METHODS.	▪ Soil sampling techniques are described in the Quality Assurance Sampling Plan (QASP). ▪ SVOCs - SW-846 Method 8270-SIM.

Appendix B
Data Quality Objective No. 1 – Soil Sampling
(Continued)

STEP 4. DEFINE THE BOUNDARIES OF THE STUDY	
DEFINE THE DOMAIN OR GEOGRAPHIC AREA WITHIN WHICH ALL DECISIONS MUST APPLY.	The grid represented by the soil sample and analytical results within the site boundaries (QASP Figure 3-1).
SPECIFY THE CHARACTERISTICS THAT DEFINE THE POPULATION OF INTEREST.	Contaminant concentrations in on-site soil.
DEFINE THE SCALE OF DECISION MAKING.	The scale of decision will be for soil represented by each sample collected from the site.
DETERMINE THE TIME FRAME TO WHICH THE DATA APPLY.	The data will apply until the soil represented by the sample receives appropriate response actions.
DETERMINE WHEN TO COLLECT DATA.	Samples will be collected during the removal action planned to start in August 2017.
IDENTIFY PRACTICAL CONSTRAINTS ON DATA COLLECTION.	• Inclement weather. • Debris and/or structures or foundations in the proposed sample grid. • Access restrictions.
STEP 5. DEVELOP A DECISION RULE	
SPECIFY THE PARAMETER THAT CHARACTERIZES THE POPULATION OF INTEREST.	Post-excavation soil samples will be compared to the site-specific action levels presented in Table 1-1 of this QASP.
SPECIFY THE ACTION LEVEL FOR THE DECISION.	Benzo(a)pyrene – 0.11 mg/kg
DEVELOP A DECISION RULE.	If any result in a post-excavation soil sample is above the site-specific action level, grid excavation will continue to a depth of 2 feet bgs. If post-excavation soil sample results are above the site-specific action at 2 feet bgs, then a warning barrier will be installed prior to backfilling the excavated grid area.
STEP 6. SPECIFY LIMITS ON DECISION ERRORS	
DETERMINE THE POSSIBLE RANGE OF THE PARAMETER OF INTEREST.	Contaminant concentrations may range from 0 mg/kg to more than the site-specific action levels.

Appendix B
Data Quality Objective No. 1 – Soil Sampling
(Continued)

STEP 6. SPECIFY LIMITS ON DECISION ERRORS (CONTINUED)	
DEFINE BOTH TYPES OF DECISION ERRORS AND IDENTIFY THE POTENTIAL CONSEQUENCES OF EACH.	Type I Error: Deciding that the specified area represented by the soil sample does not exceed the site-specific action level when, in truth, the soil concentration of the contaminant exceeds its specified action level. The consequence of this decision error is that contaminated soil will remain on-site, possibly endangering human health and the environment. There may also be potential future liability associated with clean-up costs of leaving contaminated soil on-site. This decision error is more severe. Type II Error: Deciding that the specified area represented by the soil sample does exceed the site-specific action level when, in truth, it does not. The consequences of this decision error are that remediation of the specified area will continue and unnecessary costs will be incurred.
ESTABLISH THE TRUE STATE OF NATURE FOR EACH DECISION RULE.	The true state of nature when the soil is decided to be below the specified action levels when in fact, it is not below the specified action levels, is that the area may need remedial action. The true state of nature when the soil is decided to be above the specified action levels when in fact, it is not above the specified action levels, is that the area may not need remedial action.
DEFINE THE TRUE STATE OF NATURE FOR THE MORE SEVERE DECISION ERROR AS THE BASELINE CONDITION OR THE NULL HYPOTHESIS (H_o) AND DEFINE THE TRUE STATE FOR THE LESS SEVERE DECISION ERROR AS THE ALTERNATIVE HYPOTHESIS (H_a).	H_o: The soil represented by the soil sample of the specified area is above the specified action level. H_a: The soil represented by the soil sample of the specified area is below the specified action level.
ASSIGN THE TERMS "FALSE POSITIVE" AND "FALSE NEGATIVE" TO THE PROPER DECISION ERRORS.	• False Positive Error = Type I • False Negative Error = Type II
ASSIGN PROBABILITY VALUES TO POINTS ABOVE AND BELOW THE ACTION LEVEL THAT REFLECT THE ACCEPTABLE PROBABILITY FOR THE OCCURRENCES OF DECISION ERRORS.	To be assigned based on discussions with EPA OSC.

Appendix B
Revised Data Quality Objective No. 1 – Soil Sampling
(Continued)

STEP 7. OPTIMIZE THE DESIGN	
REVIEW THE DQOs	The sample size was based on 100-foot by 100-foot grids established within the Study Area. In order to select the optimal sampling program that satisfies the DQOs and is the most resource effective, other elements were considered.
DEVELOP GENERAL SAMPLING AND ANALYSIS DESIGN *For the post-excavation sampling, START will collect five-part composite samples from 100-foot by 100-foot grids. Based on analytical results, grid areas exhibiting COC concentrations above site-specific action levels (QASP Table 1-1) will be excavated to a maximum depth of 2 feet bgs. Approximately 10 post-excavation soil samples (including QA/QC samples) will be collected utilizing sampling procedures described in Section 3.0 of the QASP. The samples will be analyzed following EPA SW-846 Method 8270-SIM.*	

Appendix C

TDD No. 0009/WESTON-042-17-064

Technical Direction Document

U.S. EPA, Region 6
1445 Ross Avenue, Suite 1200
Dallas, TX 75202-2733

Vendor : WESTON SOLUTIONS, INC

TDD # : 0009/WESTON-042-17-064
Amendment # :
Contract # : EP-S8-13-01

TDD Title : R6 Wilcox Oil Refinery Site Assessment
Purpose : TDD INITIATION

Verbal Date :
Start Date : 06/27/2017
Completion Date : 08/22/2017
Effective Date : 06/27/2017

Priority : HIGH
Overtime Authorized : Yes
Invoice Unit :

SSID : 06GG
Project/Site Name : R6 Wilcox Oil Refinery Site Assessm
Project Address : West 221st Street
County : Creek
City : Bristow
State : OK
Zip Code : 74010

Work Area : Response / Removal
Work Area Code : RS
Activity : Removal Ass'mnt w/On-Site (walk,survey, or sample)
Activity Code : RS
Operable Unit :
Emergency Code :
FPN :
Performance Based : No

Authorized TDD Ceiling :

	Amount	LOE (Hours)
Previous Action(s) :	$0.00	0.00
This Action :	$30,000.00	0.00
New Total :	$30,000.00	0.00

Specific Elements :

Description of Work :

See Schedule

Region Specific :

CERCLIS: :

Misc 2 :

Accounting and Appropriation Information:

SFO:

Line	Budget / FY	Approp.	Budget Org	Program Element	Object Class	Site Project	Cost Org	DCN Line-ID	Funding Category	TDD Amount
1	17	T	6A00	303DC6	2505	06WQWQ00	C001	176ARVC005-001	REMOVAL	$30,000.00

U.S. EPA, Region 6
1445 Ross Avenue, Suite 1200
Dallas, TX 75202-2733

Vendor : WESTON SOLUTIONS, INC

TDD # : 0009/WESTON-042-17-064
Amendment # :
Contract # : EP-S8-13-01

Project Officer : Will LaBombard *(Signature)* *(Date)*	**Branch Mail Code:** **Phone Number :** 214-665-7199 **Fax Number :**	
Contracting Officer Representative Steve Mason *(Signature)* *(Date)*	**Branch Mail Code :** **Phone Number :** 214-665-2276 **Fax Number :**	
Contract Specialist: Brian Delaney *(Signature)* *(Date)*	**Branch Mail Code :** **Phone Number :** 214-665-7473 **Fax Number :**	
Contracting Officer : Brian Delaney Electronically Signed by Brian Delaney 06/27/2017 *(Signature)* *(Date)*	**Branch Mail Code :** **Phone Number :** 214-665-7473 **Fax Number :**	
Other Agency Official *(Signature)* *(Date)*	**Branch Mail Code :** **Phone Number :** **Fax Number :**	

Description of Work:The initial funding ceiling for this TDD is set at $30,000.

Contractor shall review analytical results from prior sampling activities and provide technical advice to the OSC. Contractor shall document all site activities and provide web based reporting as directed by the OSC. Contractor shall collect all facts and information pertaining to residential properties. Identify Site and adjacent property owner information, provide property owner map. Assist OSC in documenting site access from remedial program for affected parties. If review of prior sampling activities warrant additional sampling, Contractor shall collect soil samples to determine the extent of contamination on designated residential properties. Location, type, and method of sample collection will be determined by the OSC. Contractor shall develop sampling plan. Contractor shall develop draft POLREP.

Notify TM (at a minimum) within 15 days of the TDD period of performance or within 80% of the TDD ceiling if additional time or funding are required to continue the task. START shall coordinate scope and details of final report with OSC. Contact OSC Mason at 214-665-2276 to discuss site tasks.